

Application No.: 09/942,528
Amendment dated: May 24, 2005
Reply to Office Action dated: January 24, 2005

REMARKS/ARGUMENTS

Claims 1-4, 8-10, 12-31 and 48-50 are pending in the application. Claims 51-55 have been added.

Claims 9-10 were rejected under 35 U.S.C. §112 second paragraph for having insufficient antecedent bases. Claims 1-4, 8-10, 12, 18-20, and 22-26 were rejected under 35 U.S.C. §102(e) as being anticipated by Sachdeva, U.S. Patent No. 6,315,553 (hereinafter “Sachdeva”). Claims 13-17 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sachdeva in view of Pavloskaia, U.S. Patent No. 6,463,344 (hereinafter “Pavloskaia”). Claims 21 and 27-31 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sachdeva. Claims 48-50 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sachdeva in view of Stein, U.S. Patent No. 5,657,369 (hereinafter “Stein”).

Claim Rejections Under 35 U.S.C. §112

Claims 9-10 were rejected under 35 U.S.C. §112 second paragraph for having insufficient antecedent bases. Specifically, the Office Action cites the limitation “the two-dimensional arrangement of individual components” and “the three-dimensional arrangement of individual components.” Applicants respectfully traverse this rejection.

Section 2173.05(e) of the Manual of Patent Examining Procedure states:

Inherent components of elements recited have antecedent basis in the recitation of the components themselves. For example, the limitation “the outer surface of said sphere” would not require an antecedent recitation that the sphere has an outer surface. >See *Bose Corp. v. JBL, Inc.*, 274 F.3d 1354, 1359, 61 USPQ2d 1216, 1218-19 (Fed. Cir 2001) (holding that recitation of “an ellipse” provided antecedent basis for “an ellipse having a major diameter” because “[t]here can be no dispute that mathematically an inherent characteristic of an ellipse is a major diameter”).

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(See MPEP 2173.05(e))

The two-dimensional and three-dimensional arrangements are inherent components of the individual components forming the structure recited in claim 1. Therefore the limitations of claims 9-10 has sufficient antecedent basis in claim 1.

Claim Rejections Under 35 U.S.C. §102(e)

Claims 1-4, 8-10, 12, 18-20, and 22-26 were rejected under 35 U.S.C. §102(e) as being anticipated by Sachdeva. Sachdeva discloses a method and apparatus for treating an orthodontic patient include processing that begins by generating digital information regarding the orthodontic patient by a site orthodontic system (See Abstract).

Applicants contend that Sachdeva fails to teach or suggest providing and analyzing a digitized x-ray image that includes an image of bone, as recited in claim 1.

The Office Action contends that as Sachdeva discloses taking X-ray images of teeth, this limitation is met. However, it is a well established principle in medicine that teeth and bones are separate and distinct structures. For example, bone has one type of extracellular matrix, while teeth consist of three different types of extracellular matrix (dentin, enamel, and cementum). The dentin and enamel matrices are much harder than the bone matrix, while cementum is similar to bone matrix in composition but different in structure. The cell distributions with respect to the matrix differ between teeth and bone. Bone has great turnover and healing potential, while teeth do not. For the Examiner's reference, we have attached excerpts from *Basic Histology* by L. Carlos Junquiera et al, which provides a much greater in-depth description of both teeth and

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bone. Additionally, while an X-ray image is transmitted in Sachdeva, the analysis performed by the computer at the other end is of electronic scan data and not X-ray images.

Thus, an element of claim 1 is not disclosed by Sachdeva. Therefore, claim 1 and by their dependency claims 2-4, 8-10, 12, 18-20, and 22-26, are not anticipated by Sachdeva.

Claim Rejections Under 35 U.S.C. §103(a)

Claims 13-17 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sachdeva in view of Pavloskaia. Pavloskaia discloses a computer-implemented method for generating a computer model of one or more teeth by receiving a digital data set of meshes representing the teeth (*See Abstract*).

Neither Sachdeva, Pavloskaia, nor any combination of the two teach or suggest providing and analyzing a digitized x-ray image that includes an image of bone, as claimed in claim 1, and by their dependency claims 13-17. Both Sachdeva and Pavloskaia disclose a method for imaging teeth, which is not bone, as discussed above.

Therefore, claims 13-17 are not obvious under Sachdeva in view of Pavloskaia.

Claims 21 and 27-31 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sachdeva. As stated above, Sachdeva fails to teach or suggest providing and analyzing a digitized x-ray image that includes an image of bone, as recited in claim 1. As claims 21 and 27-31 depend from claim 1, an element of these claims is not disclosed by Sachdeva. Therefore, claims 21 and 27-31, are not obvious under Sachdeva.

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Claims 48-50 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sachdeva in view of Stein. Stein discloses an x-ray bone densitometry system having an apparatus for positioning body parts (*See Abstract*).

Neither Sachdeva, Stein, nor any combination of the two teach or suggest analyzing the x-ray image at the remote computer to derive quantitative information on bone from the x-ray image, as claimed in claim 1, and by their dependency claims 48-50. Sachdeva discloses a method for imaging teeth, which is not bone and only analyzes the electronic scan data, as discussed above. Stein is an X-ray positioning system that studies images of the bone without transfer to a remote computer.

Therefore, claims 48-50 are not obvious under Sachdeva in view of Stein.

New Claims

Claims 51-55 have been added.

In addition to the reasons for patentability given above, neither Sachdeva, Stein, Pavloskaia, nor any combination thereof teach or suggest analyzing the x-ray image at the remote computer to derive structural information on bone from the x-ray image, as claimed in claim 51, and by their dependency claim 52-55. Sachdeva and Pavloskaia disclose a method for imaging teeth, which is not bone, as discussed above. Stein studies the density of bone but makes no mention of the structure.

Therefore, claims 51-55 are patentable over the prior art.

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Request for Allowance

It is believed that this Amendment places the application in condition for allowance, and early favorable consideration of this Amendment is earnestly solicited.

If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the telephone number listed below.

The Office is hereby authorized to charge any fees, or credit any overpayments, to
Deposit Account No. 11-0600.

Respectfully submitted,

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